

### **IN THE CLAIMS:**

Please amend the Claims as follows:

1. **(Currently Amended)** A film-forming apparatus in which a gas mixture prepared in a gas-mixing chamber is introduced into a film-forming chamber through a shower head to form a film on a substrate the apparatus comprising the gas-mixing chamber for admixing a raw gas and a reactive gas, the film-forming chamber connected to the gas-mixing chamber, the shower head disposed on the top face of the film-forming chamber, a stage arranged in the film-forming chamber for placing the substrate to be processed and capable of freely going up and down, and a supply port disposed at the peripheral portion on the bottom face of the gas-mixing chamber supplying the gas mixture prepared in the gas mixing chamber directly to the top face of the shower head such that the gas mixture prepared in the gas-mixing chamber and fed to the shower head through the peripheral portion on the top face of the shower head flows towards the central portion of the shower head, wherein an exhaust port for discharging the exhaust gas from the film-forming chamber is formed in the side wall of the film-forming chamber at a position located below the level of the stage at an up position and having an opening extending in a direction that is orthogonal relative to the direction in which the stage is raised and lowered.

2. **(Currently Amended)** The film-forming apparatus as set forth in claim 1, ~~wherein an exhaust port for discharging the exhaust gas from the film-forming chamber is disposed on the side wall of the film-forming chamber and below the level of the stage at an up position whereby the exhaust gas generated in the film-forming~~

chamber is directed and guided towards the side wall of the chamber and discharged through the exhaust port ~~arranged on the side wall~~.

3. **(Original)** The film-forming apparatus as set forth in claim 1 or 2, wherein when the flow rate of the gas mixture is large, the shower conductance is small and the gas mixture is injected into the film-forming chamber from the central portion of the shower head (hereunder referred to as "central gas injection") upon the formation of a film, the apparatus is so designed that it comprises a shower head having a large diameter, that the distance between the shower head and the substrate to be processed is increased or that a shower head having a large diameter is used and the distance between the shower head and the substrate to be processed is increased, to thus prevent the central gas injection of the gas mixture and to make the manner of a gas injection of the gas mixture uniform.

4. **(Original)** The film-forming apparatus as set forth in claim 1 or 2, wherein when the flow rate of the gas mixture is small, the shower conductance is large and the gas mixture is injected into the film-forming chamber from a shower head and into a region above a substrate to be processed from the periphery of the shower head (hereunder referred to as "peripheral gas injection") upon the formation of a film, the apparatus is so designed that it comprises a shower head having a small diameter, that the distance between the shower head and the substrate to be processed is reduced or that a shower head having a small diameter is used and the distance between the shower head and the substrate to be processed is reduced, to thus prevent the

peripheral gas injection of the gas mixture and to make the manner of the gas injection of the gas mixture uniform.

5. **(Previously Presented)** The film-forming apparatus as set forth in claim 1, wherein the inner diameter of the film-forming chamber and the diameter of the shower head satisfy the following relation:

$(\text{diameter of the shower head}) \times 1.5 < (\text{inner diameter of the film-forming chamber}) < (\text{diameter of the shower head}) \times 2.5.$

6. **(Previously Presented)** The film-forming apparatus as set forth in claim 5, wherein the pressure in the film-forming chamber, the diameter of the shower head and the overall flow rate of gases upon the formation of the film satisfy the following relations, respectively:

a)  $2 \text{ Torr} < (\text{pressure in the film-forming chamber}) < 10 \text{ Torr}$

b)  $\text{diameter of the substrate to be processed} < (\text{diameter of the shower head}) \times 1.5 \text{ and}$

c)  $2500 \text{ sccm} < (\text{overall flow rate of gases}) < 7000 \text{ sccm}.$

7. **(Previously Presented)** The film-forming apparatus as set forth in claim 1, wherein the distance between the shower head and the substrate to be processed (S/S distance) satisfies the following relation:

$(\text{S/S distance}) \times 5 < (\text{diameter of the shower head}) < (\text{S/S distance}) \times 10.$

8. **(Previously Presented)** The film-forming apparatus as set forth in claim 7, wherein the pressure in the film-forming chamber, the diameter of the shower head

and the overall flow rate of gases upon the formation of the film satisfy the following relations, respectively:

- a)  $2 \text{ Torr} < (\text{pressure in the film-forming chamber}) < 10 \text{ Torr}$
- b)  $\text{diameter of the substrate to be processed} < (\text{diameter of the shower head}) \times 1.5$  and
- c)  $2500 \text{ sccm} < (\text{overall flow rate of gases}) < 7000 \text{ sccm}.$

9. **(Previously Presented)** The film-forming apparatus as set forth in claim 1, wherein the clearance for exhaustion satisfies the relation represented by the following equation:

$$0.02 \text{ m}^3/\text{s} < \text{Exhaustion Conductance} < 0.08 \text{ m}^3/\text{s}.$$

10. **(Previously Presented)** The film-forming apparatus as set forth in claim 9, wherein the pressure in the film-forming chamber, the diameter of the shower head and the overall flow rate of gases upon the formation of the film satisfy the following relations, respectively:

- a)  $2 \text{ Torr} < (\text{pressure in the film-forming chamber}) < 10 \text{ Torr}$
- b)  $\text{diameter of the substrate to be processed} < (\text{diameter of the shower head}) \times 1.5$  and
- c)  $2500 \text{ sccm} < (\text{overall flow rate of gases}) < 7000 \text{ sccm}.$

11. **(Previously Presented)** The film-forming apparatus as set forth in claim 1, wherein a gas ring is disposed at the periphery of the top face of the film-forming chamber so that an inert gas, which is not directly involved in the film formation, can

uniformly be introduced into the film-forming chamber through the gas ring and along the inner surface of the side wall of the film-forming chamber.

Claim 12     **(Cancelled)**.

13.     **(Currently Amended)**     A film-forming apparatus, which comprises a load-lock chamber for stocking wafers conveyed from a wafer cassette in the atmospheric conditions; a film-forming chamber; a conveyer chamber positioned between the load-lock chamber and the film-forming chamber; a gas-mixing chamber for admixing a raw gas and a reactive gas positioned on the upstream side of the film-forming chamber; a shower head arranged on the top face of the film-forming chamber; and a stage arranged in the film-forming chamber for placing a substrate to be processed and capable of freely going up and down, in which a gas mixture prepared in the gas-mixing chamber is introduced into the film-forming chamber through the shower head to thus form a film on the substrate, wherein an exhaust port for discharging the exhaust gas from the film-forming chamber is formed in a side wall of the film-forming chamber at a position located below a level of the stage at an up position and having an opening extending in a direction that is orthogonal relative to the direction in which the stage is raised and lowered, and wherein the apparatus being characterized in that it is so designed that it can satisfy the requirements as set forth in claim 1.